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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/776,036	02/02/2001	Dennis J. Malfer	EP- 7503	8721

7590 01/15/2003

ETHYL CORPORATION  
330 South Fourth Street  
Richmond, VA 23219

EXAMINER

TOOMER, CEPHIA D

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 01/15/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/776,036	MALFER ET AL.	
	Examiner	Art Unit	
	Cephia D. Toomer	1714	

-- Th MAILING DATE of this communication appears on the cov r sheet with th correspond nce address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-65 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

This Office action is in response to the amendment filed October 28, 2002 in which claims 1, 6-8, 10-12, 17, 22-24, 34, 40, 45-47 and 54-56 were amended.

Throughout Applicant's remarks, Applicant states that claim 12 has not been rejected. However, it is clear that claim 12 should have been rejected in the 103 rejection over Malfer. The rejection contains a typographical error and should read -- Claims 12, 34, 56, and 62 are rejected ... -- . It is obvious that it was the examiner's intention to reject claim 12 because all of the recited claims contain dibutylamine as the secondary amines, an element not taught by the primary reference.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-11, 13, 17-33, 35, 39-55, 57-61 and 63-64 are rejected under 35 U.S.C. 102(b) as being anticipated by Malfer (US 5,697,988).

Malfer teaches a fuel composition for reducing engine deposits comprising a Mannich reaction product of a hydrocarbyl substituted phenol, an amine and an aldehyde in a ratio of 1.0:0.1-10:0.1-10, respectively; a polyoxyether and optionally a PAO wherein the composition comprises from about 50 to about 90 wt% of the Mannich product, from about 10 to about 50 wt% polyether and from about 0 to about 40 wt%

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PAO (see abstract). The Mannich product comprises a polyalkyl substituent, which is derived from an olefin, having a molecular weight of from about 600 to about 14, 000. Polyisobutene is such a substituent. The amine may be monoamine, such as dimethylamine and the aldehyde is formaldehyde (see col. 2, lines 40-55; col. 3, lines 16-36; col. 4, lines 5-11). The hydroxyaromatic substituent may be phenol or cresol (C<sub>1</sub> substituted phenol) (see col. 3, lines 52-57; col. 4, lines 57-67). The Mannich product is prepared at a temperature from room temperature to 95 C or higher (see col. 2, lines 63-67; col. 3, lines 1-5).

The polyoxyether is a compound prepared from alcohols (C<sub>1</sub>-C<sub>200</sub>) and 1, 2-propylene oxide (see col. 5, lines 20-56). The composition may also contain a hydrocarbon solvent such as benzene or Aromatic 150 (see col. 7, lines 52-59). The Mannich reaction product is present in the composition in an amount of less than 3000 ppm, preferably from about 600-1200 ppm (see col. 8, lines 25-40).

Accordingly, Malfer teaching all the material limitations of the claims, anticipates the claims.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12, 34, 56 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malfer (5,697,988).

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Malfer has been discussed above. Malfer fails to teach that the secondary amine is dibutylamine. However, it would have been obvious to have used the compound in the Mannich reaction because Malfer teaches that the amine may be a monamine and exemplifies a homolog of dibutylamine. It is well settled that compounds that are homologs are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties.

5. Claims 14-16 and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malfer (US 5697,988) as applied to claims above, and further in view of Malfer (US 5,725,612).

Malfer '988 fails to teach that the polybutene has at least 20, 50 or 70% terminal olefinic double bonds as alkylvinylidene double bonds. However, Malfer '612 teaches this difference (see col. 3, lines 26-56).

It would have been obvious to one of ordinary skill in the art to have prepared the compound with a polybutene having the claimed alkylvinylidene double bonds because Malfer '612 teaches that compounds prepared with this type of polybutene are more reactive.

6. Applicant's arguments filed have been fully considered but they are not persuasive.

Applicant argues that Malfer '988 differs from the present invention in that Malfer prefers to utilize polyamines in the reaction, whereas the present invention utilizes monoamines. Applicant also argues that Malfer '988 does not require hydroxyaromatic or phenolic compounds wherein an additional position on the aromatic ring is blocked.

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At col. 4, lines 5-11, Malfer '988 teaches representative amine reactants are polyamines, but he also teaches that other compounds may be used. The only requirement is that the compounds contain at least one HN- group. Malfer teaches that the amines are well known and may include monoamines, such as dimethylamine. It should be noted that dimethylamine is one of Applicant's exemplified amine reactants (see Table 1).

While Malfer prefers to use polyamine reactants, it should be noted that it is well settled that a reference must be considered for all that it teaches and not just the preferred embodiments.

With respect to the hydroxyaromatic compound, Malfer '988 teaches that the compounds are alkylsubstituted and the substituents include high molecular weight alkyl groups. Such compounds include high molecular weight alkyl substituted cresol. Malfer '988 also teaches that the hydroxyaromatic compound may be ortho dialkylphenols.

Applicant's argument regarding that unexpected results are obtained by restricting the amine reactant to monoamines and restricting the hydroxyaromatic compound to compounds wherein an addition position on the hydroxyaromatic compound is blocked has been considered but is not deemed persuasive.

The data has been taken under consideration but are not deemed to constitute unexpected results. The showings are not commensurate in scope with the claims. Applicant's amine has alkyl groups that may contain up to 30 carbon atoms, whereas the examples contain amines with methyl and butyl groups. The polyolefin substituent of the hydroxyaromatic compounds has a molecular weight of 900, whereas those of the

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claims have a molecular weight of about 500 to about 3000. The examples are limited to the lower end of the claimed ranges. The examiner cannot ascertain if unexpected results are obtained over the entire claimed range. Also, the base claims are devoid of proportions whereas the examples contain specific amounts and ratios of each component.

Applicant argues that Malfer '988 requires a polyoxyalkylene compound in conjunction with the Mannich reaction products.

In the claims of the present fuel additive composition, the composition comprises at least one liquid carrier for the Mannich detergent/dispersant (see claim 17). The carrier may be polyoxyalkylene compounds (see claims 25 and 26).

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cephia D. Toomer whose telephone number is 703-308-2509. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

A handwritten signature in black ink, appearing to read 'Cephia D. Toomer', with a long horizontal flourish extending to the right.

Cephia D. Toomer  
Primary Examiner  
Art Unit 1714

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January 10, 2003